LOUISIANA
Conservationist
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J. Burton Angelle Sr., *Secretary*

comments...

Everyone's attention this spring seems to be focused on water. The theme of the recent National Wildlife Week was "Water—We Can't Live Without It." The newly opened 1984 Louisiana World Exposition in New Orleans has as its theme, "The World of Rivers—Fresh Water as a Source of Life," while June has again this year been designated as "National Rivers Month."

This focus on water is particularly appropriate in Louisiana and long overdue. As Louisianians, we lead lives that are as rooted in the waters of this state as in its fertile soil. For too long, we took this state's God-given abundant water supplies for granted, often abusing them with little or no forethought or afterthought.

Recent years have seen the beginnings of a reversal in this attitude, as citizens of the Bayou State are starting to appreciate the importance of clean water and are demonstrating a willingness to pay the price to insure quality water for the present and future.

For the majority of Louisiana citizens, their very livelihoods are tied directly or indirectly to those abundant water supplies. These ties run the gamut from those that make their living directly from the water like fishermen and shrimpers and the many commercial outlets that both provide their needs and distribute their product, to farmers and workers in the many industries that thrive in Louisiana because of abundant good water supplies, inexpensive movement of materials afforded by the maze of waterways that crisscross the state, and Louisiana's many ports that serve as gateways to world markets.

Louisianians also depend heavily on water for another important aspect of their lives—recreation. Recreation is a vital area of our everyday lives and in the Bayou State, probably more so than any other state in the country, many of our leisure time pursuits are water related. I grew up on the water, and even as an adult many of the good times I look back on with joy were experienced on the water. From swimming, fishing, hunting, watersports—the list of water related recreational opportunities in Louisiana is seemingly endless.

In this issue of the Louisiana Conservationist, we mirror this state's love affair with water and focus on just a few of the many water related subjects in the Bayou State.

The issue starts with a discussion of the Louisiana shrimping industry, the cornerstone of this state's billion dollar seafood industry. Faced by the continuing loss of marshland nursery ground, ever spiraling costs and the rising tide of inexpensive imported shrimp, the Louisiana shrimping industry is an industry in the midst of change. The clouds that dot the industry's horizon have many shrimpers concerned about the future.

In this issue, we explore the shrimping industry from both the standpoint of the resource itself and the people that make their livelihoods from harvesting that resource. Also featured are some helpful tips for the do-it-yourself recreational fisherman who would like to go out and harvest a few of these scrumptious creatures themselves but does not know how to go about it.

A special treat also contained in this issue is the many fine recipes for the famous shrimp dishes that are pictured on the cover.

This issue also takes a critical look at the state's present water quality. Louisiana's water quality image has taken a number of direct hits in the last few years and as a result the public impression of this state's water quality has suffered. When the quality of Louisiana water is questioned, so too are the products that come from these waters. The impact of this is felt not only in a quantitative dollar value manner, but also qualitatively through a decline in the pleasure associated with utilizing Louisiana water for work or play and a fear that by using the water, or products from it, one may be endangering his health.

To say that everything is fine and we don't have any problems in Louisiana would be ridiculous, but it is equally ridiculous to picture our state as polluted and our waters and their products as unsafe to consume or to say that no one is working to try to correct the problems that do exist.

Louisiana has some of the best and most abundant water in the nation and in recent years many of the problem areas have been getting better, not worse. When assessing Louisiana's water quality, the whole picture must be taken into account.

The final article in this issue I wish to highlight concerns the state's scenic rivers program. In terms of miles of streams protected, Louisiana ranks number one in the United States. Our extensive scenic rivers program stands in direct contradiction to those who say that we are not taking an active role in preserving our natural habitat.

I feel that this issue of the Conservationist will add to your appreciation and enjoyment of Louisiana's bountiful water resources, inform you of some of its problems and efforts that are under way to correct these problem areas, and challenge you to continue to support efforts to maintain good water quality for the future.

LOUISIANA Conservationist

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The Louisiana Shrimp Story

Beset by controversy and facing severe challenges, the shrimp fishery remains the cornerstone of Louisiana's vast seafood industry. With an annual harvest valued at more than 130 million dollars, the shrimp business provides a livelihood for thousands of Louisiana citizens and affects the economy of the entire state.

By Maurice Cockerham

Photography by Guy LaBranche

The big, steel-hulled boat glides slowly against the dock, her prow looming high above the men waiting to receive her lines and fasten her securely into position. The shouts of the men on her decks and the workers on the docks are all but drowned out by the clanging of machinery and the rhythmic throb of powerful diesel engines. Finally, all is secure and the hands turn their attention to off-loading the perishable gold nestled deep in the bowels of the boat.

Compartments are opened and men armed with broad, heavy shovels begin loading wire baskets which are then lifted free of the boat and dumped into waiting tanks of water. The value of the precious cargo is compounded by the long hours of sweat and toil necessary to gather and deliver it, and by the enormous cost of operating a boat such as this for a week or more on the open expanse of the Gulf of Mexico. This is the cornerstone of the vast Louisiana seafood industry. This is part of an annual $130 million harvest. This is the Louisiana Shrimp Story.

Most of us never give a thought to the industry that provides us with those fancy shrimp cocktails, etouffees, gumbos or stews... those steaming platters of boiled shrimp and countless other dishes. Few of us realize the enormous impact of this industry upon the economic health of thousands and thousands of Louisiana citizens who make their livings, directly or indirectly, from the bounty of the sea.

Louisiana's neighbors also benefit from this state's abundant shrimp crop. In 1983, the total catch along the Louisiana coast, according to the National Marine Fisheries Service, was 93 million pounds (heads on) valued at $177 million, while landings by Louisiana vessels amounted to 77 million pounds, with a value of $133 million. The remainder were landed by out-of-state boats.

This is also an industry undergoing the turmoil of change. Some say it is a threatened industry,... threatened by serious environmental changes and by oppressive and constantly escalating costs of operation. And more recently threatened by imports of pond raised shrimp from South America and Mexico. On the other hand, it remains one of the oldest continuing industries in Louisiana. Modern technology has elevated shrimping from a local subsistence operation, confined to the immediate area of the coast, to the status of a complex industry helping to feed a nation.

It all begins far out in the blue waters of the Gulf of Mexico. In water depths of 150 to 300 feet, mature brown shrimp are spawning continuously. This reproduction peaks, however, in the winter months of December, January and February. It is this winter spawning of the brown shrimp that serves as a focal point for one segment of the shrimping industry. Modern scientific shrimp management begins here and, ultimately, returns full cycle to insure that there will be yet another bountiful crop in each succeeding year.

Although the deep waters of the open gulf give life to the new crop of brown shrimp, the gulf cannot sustain that life. In one of the many mysteries of nature, the millions of tiny shrimp larvae are caught up by the currents of the gulf and moved slowly landward until they finally enter the main passes, cross the major coastal bays and disperse throughout the vast expanse of Louisiana's coastal marshes.

Research into the life cycle of the brown shrimp has revealed that this estuary "nursery" system is the single most important factor in the development of the annual shrimp crop. Hence, the current trend toward shrinking marshland habitat could be a problem for the future of the shrimping industry. The consensus among biologists is that the continued loss of coastal marsh habitat cannot help but eventually reduce the volume of the state's annual shrimp crop. While there could be a short-term increase in productivity due to the increased amounts of organic materials released from the dying marsh, the long range impact is all too clear: no marshland nursery... no shrimp.

Although the small brown shrimp are only 10 to 15 millimeters in length when they arrive in the estuary system, favorable hydrological conditions will result in a fantastic rate of growth. The inshore migration of the post-larval shrimp has generally peaked and the "growth phase" has begun by the first week in April. By this time, biologists from the Louisiana Department of Wildlife and Fisheries are taking weekly samples to monitor the development of the young shrimp.

The shrimp monitoring program operates throughout the year, using a variety of scientific gear for both biological and hydrological sampling at 115 stations throughout the marsh and the offshore territorial waters. As the growth phase progresses, monitoring and sampling activity intensifies to refine the data available on growth rates, distribution and density of the shrimp population.

The biologists have learned that there are two major factors which contribute to optimum survival and growth. Water salinity levels must be above ten parts per thousand,

Many Louisiana shrimp boats are equipped with both the large square-framed "wing" or "butterfly nets" and the traditional bottom-hugging "otter trawls"

An inshore Louisiana shrimper goes about sorting his catch on a large sorting platform mounted on the stern of his wooden skiff

and water temperature must remain above 70°F. Each day that habitat conditions are below those minimum levels represents a setback to the optimum development of the crop. Under constantly favorable conditions, however, sample analysis has revealed a growth rate as high as two and a half millimeters per day.

As monitoring continues throughout April, data are being constantly updated for the opening of the harvest season in the state's "inside waters." (The harvest of mature adult shrimp in the open gulf continues throughout the year.)

In the early 1960s a standard criteria was established, following agreement by biologists, fishermen and processors, which calls for the opening of the spring shrimp season with the median size of brown shrimp is "100 count," or 100 shrimp to the pound. Using a standard growth rate figure of 1.5 millimeters per day (to allow for temperature and salinity fluctuations), and the results of the intensified monitoring efforts, biologists recommend a date when they consider at least fifty percent of the shrimp in the monitoring samples will reach the "100 count" size. That recommendation is one of the primary considerations used by the Louisiana Wildlife and Fisheries Commission to officially set the opening date for the spring shrimping season.

The season almost always opens on a Monday, due simply to economic reality. Smaller shrimp boats, without provisions for icing or refrigerating their catch, usually return to the docks at the end of each day to off-load. The docks and processing plants, understandably, want to plan their start-up to utilize the full work week.

The harvest of brown shrimp is interrupted each summer by a second wave of migrating post-larval shrimp. These are white shrimp, and while available research data falls far short of the information available on the brown shrimp, they are also an important part of the annual Louisiana harvest.

Unlike brown shrimp, which spawn in the deeper waters of the gulf, white shrimp apparently spawn in the near-shore waters 50 to 60 feet deep. When significant numbers of juvenile white shrimp show up in the samples taken by biologists in the estuaries a recommendation is made to the Wildlife and Fisheries Commission that the brown shrimp season be closed. This closing of the "inside waters" season is strictly a management practice designed to protect the migrating white shrimp as they enter the estuary nursery grounds to begin their own "growth phase."

Unlike the spring season, the opening date of the second portion of the shrimp harvest in "inside waters" is set by law to occur on the third Monday in August.

Of course, the opening and closing of the respective seasons does not represent a total interruption of the state's shrimp harvest. Shrimping continues all year in the open, offshore waters of the gulf, where large, ocean-worthy vessels pursue the adults of several species.

There are two major methods of harvesting shrimp, and three general types of vessels utilized by commercial shrimp fishermen. The large, open-water boats of the deep gulf utilize the "otter trawl" in one of several variations. The trawl is basically a net weighted along the bottom edge of the open end and equipped with floats along the upper edge to hold the mouth of the trawl open. Wooden or aluminum "doors" are attached to each side and act to spread the trawl as it is pulled through the water on the bottom. On offshore vessels the trawls may exceed 50 feet in width at the mouth, and the larger vessel may pull two or as many as four trawls simultaneously.

Similar, but smaller, trawls are used by smaller boats working closer to the shore or in the large coastal bays, passes or estuaries during the legal season. The size of the trawl used is limited to 50 feet in width in inshore waters, and multiple trawls are prohibited.

Although the otter trawl has been the mainstay of the commercial shrimping industry since its introduction in the early part of this century, it has come under untense competition since the 1950s, when the "wing" or "butterfly" nets were introduced. These efficient fishing tools are mesh nets held open by rigid frames which can be suspended from a boat, barge or permanent dock to harvest shrimp in the upper layers of the water column. Although they are primarily used from a stationary position, depending upon water currents to bring the shrimp to the net, they may also be suspended from a slowly moving boat. Wing nets are used in inshore waters and are limited by law to a maximum width of 22 feet, or a 12 foot net on each side of a boat.

Wing nets have steadily increased in popularity since their introduction. Not only do they appear to be economical in these days of rapidly escalating fuel and vessel maintenance costs, but they are at times an efficient method of harvesting shrimp in the estuaries and passes where currents carry concentrations of migrating shrimp returning to the open waters of the offshore gulf.

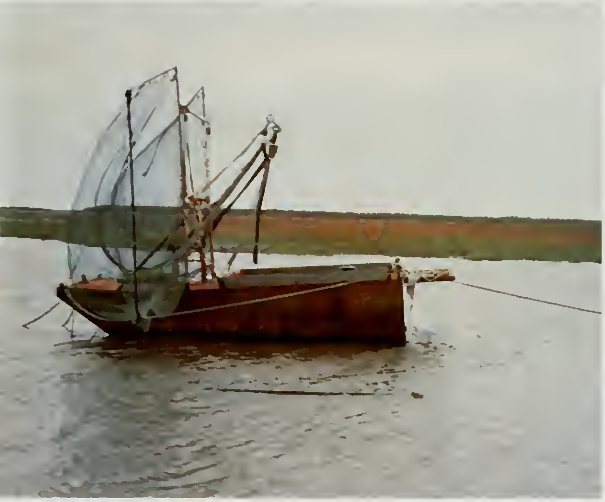
A large number of commercial shrimp boats are now outfitted with both types of nets. The otter trawls are usually fished during the daylight hours, and the newer wing nets are suspended from the vessel at night, often while the vessel is riding at anchor.

One of the newest innovations in equipment is the so-called "chopsticks" trawl, or "Xipe," introduced recently by Vietnamese fishermen. This device utilizes features of both the wing net and the otter trawl. The mouth of the net is fastened to timbers lashed to the bow of the vessel in a configuration resembling a pair of chopsticks and is pushed, rather than pulled, through the water. Each timber has a skid on the end designed to ride over the bottom. In this fashion, drag on the vessel is reduced, thereby reducing fuel requirements, and the depth of the trawl can be adjusted to the most productive level in the water column. Additionally, the timbers hold the mouth of the trawl open, regardless of the speed of the vessel. Finally, the Xipe is set up so that the end of the trawl can be hauled aboard and the catch removed while the mouth of the trawl remains in the water. Consequently, fishing continues even while shrimp are being removed from the net.

Although the original chopsticks trawls introduced in Louisiana waters were often more than forty feet in width, they have now been defined by the Department of Wildlife and Fisheries as a variant of the wing net and, as such, are limited to a width of 22 feet.

Boats used in the commercial shrimp harvest are as varied as the equipment they carry. They can, however, be grouped into three major classes. The smaller boats, mostly of the Lafitte Skiff type, but with a generous sprinkling of modified pleasure boats included, work the smaller bays and estuaries. They use both smaller trawls and wing nets, but usually do not have refrigeration and return to their docks at the end of each day. The catch is simply sorted by size and stored in large wire or plastic baskets. If the shrimp are kept in a cool, shady area of the boat, shrimp quality will not suffer in a single day.

Biologists with the department's seafood division shrimp monitoring program sort and size shrimp caught during a sample trawl



Butterfly nets are often mounted in pairs on floating platforms and anchored in waterways in the marsh

It makes little difference if they are caught by a larger ocean-going vessel or a recreational fisherman, shrimp are definitely a treat for the palate

The second classification of shrimper is the bay trawler or "ice boat." On these larger boats the catch is washed and sorted and often the heads are removed. Then the catch is placed in insulated bins, layered in crushed or shaved ice. Due to their refrigeration ability, the "ice boats" may continue fishing for 2 to 5 days before returning to dockside.

The final category is the large, open water trawler which may remain at sea for several weeks at a time. Once the shrimp are washed and sorted and the heads removed, they are preserved in freezer compartments. Some of the older trawlers still use ice, but combine it with special preserving powders to prevent spoilage. Larger and newer boats carry refrigeration equipment, complete with large freezer compartments.

Once the boat returns to the dock, the methods of handling the catch are basically the same for all boats. The shrimp are transferred from the vessel to large washing vats. At this time, the catch is sampled for size counts and either moved directly into processing plants or, in most cases, refrigerated once more for shipment to a processing plant. Most dock facilities are independent and function as "agents," buying from the shrimp fishermen and selling to the processors.

There was a day in the not-too-distant past when you could purchase fresh shrimp only if you happened to live quite close to the coast. Otherwise, you had to settle for canned or dried shrimp. As technology bloomed, however, the fledgling shrimp industry blossomed. Today, the average citizen throughout the nation may choose between dried shrimp, canned shrimp, fresh heads-on shrimp, fresh heads-off shrimp, frozen shrimp with or without heads, peeled shrimp (fresh or frozen), or breaded shrimp.

Of course, the availability of fresh shrimp still decreases in direct proportion to the distance between consumer and dock, but modern transportation and refrigeration have helped to create a truly national market. It is worthwhile to note that the restaurant trade consumes an estimated 80 percent of the total commercial shrimp harvest, and the bulk of that trade is in processed (i.e. frozen) shrimp.

But all is not totally well with the Louisiana shrimp story. There are serious challenges to be faced. One of the chief of these is the soaring tonnage of pond-raised shrimp now being imported from Mexico, Ecuador and other South American countries. Ecuador alone is shipping more than fifty million pounds of such shrimp to the U.S. each year. Climatic conditions are such that Ecuador can raise three crops of pond shrimp each year, and pond shrimp can be harvested much more economically than gulf shrimp.

Mexico, on the other hand, enjoys the benefits of a government sponsored fishery. In addition, Mexican diesel fuel sells for about twenty five cents per gallon, compared to an average of $1.10/gallon in the U.S.

The net effect of rising imports may be a depressed dockside price for Louisiana shrimp. Although this may appear to be good news for the average American consumer, it is a point of angry controversy among American fishermen.

This problem, along with other problems like the continuing loss of marshland, spiraling costs and illegal shrimping activity, are not insurmountable. There is continuing interest in intensive management of natural marshland to maximize shrimp production (Louisiana's climate is not stable enough for pond raising shrimp), and the Department of Wildlife and Fisheries is rapidly increasing its patrol and enforcement capability. And finally, intensive research is underway aimed at combatting the erosion of vital coastal marshes, that irreplaceable "nursery ground" for the entire Louisiana shrimp story.

SO YOU WANT TO DO IT YOURSELF

Each spring the Department of Wildlife and Fisheries receives literally dozens of inquiries from Louisianians who would like to venture onto the state's many coastal bayous, bays and passes and catch their own shrimp. The following is sound general advice designed to help the tyro make that first big step in shrimping.

Before you even outfit your boat, you should be completely familiar with the laws relating to recreational shrimping. The basic regulations are really quite simple. No license is required for either your boat or your equipment if you are using a properly registered pleasure boat and a trawl measuring 16 feet or less across the float line. You are, however, limited to a maximum catch of 100 pounds of heads-on shrimp per day, per boat.

If you use a trawl larger than 16 feet, or sell your catch, additional licenses are required.

In addition to the proper licensing requirements, a beginning shrimper must also familiarize himself with the state's zone system and seasons.

Now then, before you begin pulling a net you should be sure to equip your boat with sturdy attachments, such as cleats, to withstand the strain of the net when it is, hopefully, full of shrimp.

The net, or trawl, should be selected with care. It is best to buy from a reputable dealer and seek the advice of someone knowledgeable. Adjusting the trawl doors will take a bit of trial and effort, but the accompanying diagram provides a general starting point. The point of the exercise is to have the doors ride the bottom and act as directional fins to keep the mouth of the trawl open. The buoy line will hold the upper edge open, and the weighted line on the bottom does the rest.

The importance of the weighted edge of the trawl is often overlooked. The shrimp you are looking for will be found at or near the bottom. Obviously, if the trawl rides above the bottom it will catch few shrimp. Most shrimpers rig a section of chain to drag across the bottom just ahead of the trawl. These are commonly referred to as "tickle chains." They create a slight agitation on the bottom that causes the shrimp to "jump up" so that they are swept into the trawl.

Once the trawl is put overboard, tail first, and the doors are dropped over the sides, you must be sure to pay out enough line so that the trawl sinks to the bottom and rides well clear of the disturbance created by the boat's propeller. In addition, the actual "drag" is usually made in a gentle "S" pattern or an endless circle, which results in the trawl being slightly to one side of the angle of the propeller thrust. Keeping the trawl free of the propeller disturbance is particulatly important when fishing shallow waters.

Some sport shrimpers also take the precaution of tying a light buoy on a length of line fastened to the tail of the trawl. If a submerged object snags the trawl, the lines can be cast off and the trawl hauled aboard from the tail to clear it.

Now that you know how to trawl for shrimp, the logical question is, "How do I know where to trawl?"

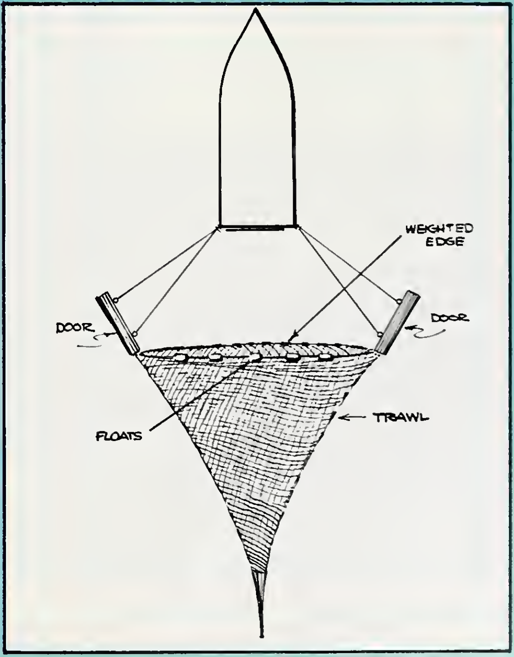
In the first place, as we mentioned earlier, you must be familiar with the shrimping seasons and zones. Zone boundaries and seasons for the year are available from your nearest Wildlife and Fisheries office once the season dates have been set.

Once in your selected area, the best course of action for the beginner is to observe other boats. Pay particular attention to commercial shrimpers. Those boys do not drag their trawls for fun. If you see several commercial boats working an area, you can bet they are catching shrimp. Dump your own gear over the side and "git in amongst them." Just be cautious and courteous enough to stay out of their paths and clear of their trawls.

Other techniques for locating shrimp include asking for advice at local marinas and fish markets, checking with Wildlife and Fisheries personnel in the area, or watching for birds or fish that may be feeding on shrimp.

Once your trawl is overboard, remember that trawling for shrimp takes time. You may want to check your trawl after thirty to forty five minutes to be sure you are actually catching shrimp, but after that a drag of two or three hours is not uncommon. Once your course is established, keep your speed slow and steady. Three to five miles per hour is sufficient. More speed will only tend to collapse your trawl.

In closing, here's a word of advice on handling your catch. Once you have the shrimp on board, separate the crabs, fish and junk and wash your shrimp down. Then put them on ice. Shrimp should be put into ice in layers. If they are simply piled into a chest and covered with ice, they will form their own insulation. As a result, the shrimp in the middle of the pile will not be refrigerated at all and will quickly spoil.



The State of Our Waters

The statement that Louisiana still has some of the best water in the nation does not conflict with the acknowledgement that problems do exist.

By Wade Byrd

The Water Pollution Control Division of the new Department of Environmental Quality is a striking example of justified government reaction to legitimate public concern

Louisiana's lakes, streams, marshes and groundwater supplies are under assault. On this point, few will disagree.

In the scant two decades between 1960 and 1980, statewide water use has doubled and is projected to continue to increase well into the next century.

During this same period of tremendous growth in the number of water users, water monitoring technology has experienced an equal if not greater change. Substances that heretofore could only be detected at levels of parts per thousand, if at all, suddenly were able to be found in parts per million and parts per billion.

These two developments came on the heels of research continuing throughout this period that began to link many of these same substances isolated in water to cancer, heart disease and various other illnesses. Substances that could have been in the water for years, possibly even naturally occurring, were now detectable and a source of concern.

The public's attention was focused on water quality and everyone had horror stories to tell.

One of the more memorable experiences of my childhood was our family's frequent summer excursions to the swimming hole just down the road from where we lived. My memories are of happy times, big clean beaches, forests and cold swift water that smelled and tasted as if it had just flowed from our well.

Today, manicured lawns of houses have replaced those beautiful oaks, drain lines from septic systems discourage drinking the water and surface mining (sand and gravel) operations have drastically altered the beaches.

Horror stories of this type dominate the headlines. It's hard to read the newspaper or watch the news on television for more than a couple of days in a row without coming face to face with such woeful tales. Although such things must be reported and can even serve to stir an otherwise apathetic public to action, they are only half the whole story.

The other side, not so prominently displayed but nonetheless important, is represented by the good times I enjoy, still today, with my children in "our favorite spot" on another nearby river. The icy water is crystal clear, the beaches white and clean and surrounding forests seemingly unscathed by man. And, as part of Louisiana's scenic rivers system, it will remain such for generations to come.

What you don't read is just as important as what you read in getting the whole picture. For every horror story, it must be remembered that there are many happy tales left untold. Considering both sides does not mean that either is being neglected. They are not mutually exclusive. The statement that Louisiana still has some of the best water in the nation does not conflict with the acknowledgement that problems do exist.

Government mirrors the attitude of the people. Legitimate public concern stirs justified response, while scare tactics (perpetual prophecies of doom) have the potential of either causing unjustified response or eroding confidence in responses that have already been taken.

A striking example of government reaction to justified public concern is the water pollution division of the new Department of Environmental Quality, the cornerstone in the state's multi-department effort to maintain water quality.

In the mid-1960s, the state's water pollution control program was funded at less than a quarter-million dollars and involved some 16 people. By 1979, that figure had grown to a yearly budget of $1.2 million and a head count of 39 persons. Today, the budget for the division exceeds $5 million with 101 budgeted positions of which 90 percent are technical personnel.

When the increased efforts of other state agencies and the federal government are added to this, one begins to get an idea of the total resources that are now being brought to bear on maintaining Louisiana's water quality.

The Mississippi River is a classic example of how these increased efforts can bring about favorable results. Draining 1.2 million square miles of land, a third of the United States, the Mississippi River is more than strictly a Louisiana problem. But with 1.5 million persons in the area below Baton Rouge and on Bayou Lafourche using the Mississippi River as their primary source of drinking water, the river is of acute interest to this state.

Because of response both at state and federal levels, most monitored water pollution parameters have shown a dramatic and consistent decrease in recent years in the amount of materials discharged into the river, and in most cases the reductions have been 90 percent or greater.

This has occurred during a period in which there have been significant increases in the number of facilities permitted to discharge into the river and in the production at existing facilities.

Industries on the Mississippi River between Baton Rouge and New Orleans have during this same period spent in excess of $1 billion to construct wastewater treatment facilities and have demonstrated a 98 percent compliance record with discharge permits.

Despite this overall improvement in Mississippi River water quality, new instrumentation has resulted in the detection of potentially harmful substances at levels below that which could previously be detected. This had led to widespread fears in many areas over the safety of using river water. A recent survey in the New Orleans area revealed that three-quarters of respondents felt

Department of Environmental Quality Patrol boats like the Water Doctor keep a watchful eye on the Mississippi River.

Technological advances in water monitoring equipment have resulted in instrumentation that is very sensitive, reliable, easy to use, and portable

that drinking Mississippi River water can cause serious illnesses even though no studies to date indicate this to be the case. Bad taste, bad smell, cloudiness of the water, media publicity and the mere presence of chemical wastes in the area accounted for almost 70 percent of the reasons for feeling river water is unsafe.

The Environmental Protection Agency estimates that a granular activated carbon filtration system for the city of New Orleans that would be able to exceed clean water standards and produce clear, odorless and colorless water would cost $50 million to build and have a yearly operating cost of $17 million. This would cost the average household in New Orleans an additional $2 to $4 per month.

Unfortunately, just coming up with an answer to a problem is not always enough to effect a solution. Often, action is taken only in response to crisis.

In 1981, a very well publicized spill of phenol occurred in the Mississippi River. The resulting pollution was more an offense to the senses than a threat to health. Nevertheless, the water pollution control division received an additional $2.5 million and 26 additional positions. Because of this increase in funding brought on by reaction to very negative publicity, the division is now able to monitor significant discharges every 30 days whereas prior to the phenol taste and odor incident it took approximately 18 months to get back full circle to an industry in conducting compliance monitoring.

Recently, efforts have been centered at acquiring funding to implement an Early Warning Organic Compound Detection System for the Mississippi River to monitor on a daily basis the volatile organic compounds in the river. This program is modeled after a similar program developed by the Ohio River Sanitation Commission following a series of chloroform spills in the Ohio River in 1978. Since implementation of that program in Ohio, they have not detected a single unreported spill for parameters that they monitor.

When discussing water concerns, groundwater and surface water, each with their own particular problems, must be considered separately.

Surface water pollution is currently identified as coming from either point or non-point sources. Point sources are those identifiable discharges from industry and municipalities. Non-profit sources are much less identifiable and harder to manage and orginate from agriculture, municipalities and natural sources.

The state's water bodies are separated into categories and water quality standards set according to their use. The four categories are primary contact recreation, secondary contact recreation (which includes fish and wildlife propagation), public water supply and shellfish propagation.

At least seven different agencies are currently involved in monitoring surface waters in Louisiana on a regular basis, with monitoring stations across the state numbering approximately 2,000.

There are presently some 3,000 permitted point source discharges throughout the state. These permittees are monitored under the compliance assurance program of the water pollution control division of DEQ. Permittees are divided into categories as to their potential to impact the environment, with ones with a greater potential for environmental impact receiving more attention. Compliance rates for industrial permittees is currently above 95 percent, while municipal permittees show an 85 percent rate of non-compliance.

The Calcasieu river from Oakdale to the Gulf of Mexico, currently considered the most acute water quality problem in the state, is an example of an area impacted by point source discharges. There are frequent violations of water quality criteria on this part of the river that orginate from the concentrated industrial and municipal discharges in the Lake Charles, Westlake, Oakdale, Elizabeth, DeRidder and Cameron areas.

Industrial permittees have historically been easier to manage than municipal permittees. In the last three and a half years the state has assessed and collected over $2 million in water pollution penalties from industrial violators. This amount is more than has been collected in all previous years combined.

The problem with getting offending municipal permittees to comply is the built in excuse of lack of funding. A program by the EPA called the Construction Grants Program was to provide 75 percent federal funding to build or upgrade publicly owned treatment facilities. The funds available under this program are getting less and less and the permitting procedures more lengthy and burdensome.

The marshes below Houma and Morgan City are good examples of areas suffering water quality problems stemming in large part from municipal discharges. Because these marshes are used for shellfish propagation they have very severe limitations on the levels of fecal coliforms allowable in the water. Coliforms are bacteria present in the intestinal tract of warm blooded animals and their presence indicates fecal contamination.

The discharges of inadequately treated wastes from these two urban areas have, on occasion, resulted in the closure of large areas to shellfish culture by the Department of Health and Human Resources, Office of Health Services and Environmental Quality and the Department of Wildlife and Fisheries. Long term closures include portions of Terrebonne Bay which have been closed since 1968.

Non-point sources are recognized as major contributors to water quality problems around the country and Louisiana is no exception. Non-point sources such as natural, agricultural and municipal storm water runoffs are much harder then point sources to monitor and effectively control.

Natural pollution includes such things as sediment loading and the ever increasing threat of saltwater intrusion. (See Managing our Marshes, Jan/Feb 1984 Louisiana Conservationist.)

Surface water problems associated with agriculture are basically pesticides and turbidity due to erosion. Some areas of Louisiana farmland are experiencing an average annual soil loss of six tons per acre per year. Many of these areas have been selected by the USDA Soil Conservation Service for special funding to be used to provide technical assistance to landowners to help them reduce erosion to acceptable levels.

The water pollution control division of DEQ along with the recently created Toxic Substances Advisory Committee are charged with monitoring pesticide levels in fish tissue and stream sediments throughout the state. Serving along with DEQ on the advisory committee are representatives from the departments of Wildlife and Fisheries, Agriculture, Health and Human Resources and Louisiana State University. Modern insecticides and herbicides deteriorate rapidly, but prior to 1978 more toxic long lasting compounds such as DDT were used. Levels of some of these substances are still found in bottom sediments in some areas. One of the more pesticide impacted spots in Louisiana is the Lake Providence area. Located in the middle of a large agricultural area, Lake Providence is still showing unacceptable levels of DDT metabolites and was only recently reopened to fishing. There is still a caution about eating striped or hybrid bass out of the lake.

The municipal contribution to non-point source pollution is urban storm water runoff. As a general rule, storm water runoff is shunted directly into surrounding water bodies without treatment. Storm water runoff from New Orleans and surrounding communities is felt to be a major contributor to pollution problems on the southern shore of Lake Pontchartrain. The Corps of Engineers has estimated that the cost to put in final treatment for the Greater New Orleans area urban storm water runoff would be $1.7 billion for the first year. Faced with these types of costs, urban storm water runoff is a problem that will probably be with us for some time.

A source of concern for both surface and groundwater is the thousands of wastewater impoundments around the state. The Louisiana Geological Survey of the Department of Natural Resources has identified through aerial photography in excess of 20,000 impoundments in southern Louisiana alone. These impoundments vary from hazardous waste pits, to municipal and industrial ponds, to oil and gas activity pits (mainly brine storage), to farm ponds and depressions formed by surface mining activity (sand and gravel). These impoundments are sources of concern because they occasionally spill over into adjoining waterways and because of the possibility that some of the substances contained in them may be leaching into the ground and contaminating groundwater supplies.

Groundwater supplies throughout the state are generally of good quality; however, there are several sources of concern.

A companion threat to leaching from wastewater impoundments is the over 4,500 wastewater injection wells currently listed with the Office of Conservation UIC program. These wells inject substances ranging from hazardous waste to salt water. Presently, only 76 are rated as Class I hazardous waste disposal wells. All such wells are closely monitored by the Office of Conservation, DNR.

The Department of Health and Human Resources, Office of Health Services and Environmental Quality, is responsible for sampling drinking water throughout the state. During 1983, personnel from the department made over 70,000 drinking water samples.

In the early part of this decade, concern was expressed over the possible migration of toxic materials from hazardous waste pits and injection wells through the soil and into adjoining drinking water supplies. In response to this, in the fall of 1982 the Drinking Water Surveillance program was intiated by DHHR. Twenty sites across the state were selected by the Department of Natural Resources to be included in the monitoring program and DHHR added two more to the list. So far, monitoring of wells around these sites has not shown any indication of migration of waste into adjacent water supplies.

Saltwater encroachment on groundwater supplies is a major problem in southern Louisiana. Studies are currently under way to determine if overuse of freshwater acquifers on the fringes of the underground saltwater line is leading to accelerated salt-water encroachment.

The current trend of industries to switch from using groundwater to using surface water is relieving much of the pressure on previously overtaxed groundwater supplies. In some areas, a reversal of the trend of lowering groundwater levels has been noted. The ratio of surface to groundwater usage has gone from 4 to 1 in 1960 to 6 to 1 in 1980 and is projected to be almost 7 to 1 by the year 2020.

The protection of Louisiana's water quality is a multifaceted undertaking. Many people are working feverishly to insure the maintenance of quality water we still enjoy and addressing problem areas that do exist.

But the fact that many others are working to protect our waters doesn't let us off the hook for not doing our part.

The days of sitting around the camp that has a sewer line running straight into the water and talking about the need for clean water are over.

Dumping spent oil you just removed from your automobile into the storm drain while complaining that industry is polluting our rivers just won't cut it anymore.

The Department of Environmental Quality maintains a tollfree environmental hotline (1-800-535-8763) that citizens can use to get involved in protecting our environment. It is the intent of DEQ to follow up on all complaints they receive. Last year, the water pollution control division investigated 1,387 citizen complaints. Twenty percent proved to be significant problems.

It's time to do more than talk about a clean Louisiana.

Editor's Note: The author wishes to thank personnel in the departments of Environmental Quality, Health and Human Resources, Natural Resources and Transportation and Development for their help in the preparation of this article.

Louisiana's waters produce a large variety of species of fish that are fun to catch, tasty and nourishing

In Celebratio

By Judy Hughes Marte

# of Scenic Streams

Bob Dennie

As visitors to the 1984 World Exposition in New Orleans explore the theme "A World of Rivers—Fresh Water as a Source of Life," we thought it appropriate for Louisiana Conservationist *to highlight Louisiana's outstanding scenic rivers program. With 47 streams and over 1,250 miles included, Louisiana's Scenic Rivers System now ranks first in the nation. Here, we celebrate the program and focus on three of the most popular scenic streams.*

Each year since 1976, thousands of outdoor enthusiasts have gathered near the small north Louisiana town of Bernice on the first weekend of June for a three-day gala event—the "Corney Creek Festival."

The festival, a celebration of the wild and scenic Corney Bayou (Called Corney Creek locally), includes such activities as a square dance, auction, country music, tricycle and funny tub races, fishing contest, arts and crafts, turtle races... and lots of food and fun. But, the main event is the Governor's Cup Canoe Race, a race down a 12-mile stretch of Corney Bayou. Last year over 60 canoes were in this, the oldest and largest Louisiana canoe race.

The celebration of Corney Bayou was organized eight years ago by Louise Johnson of Farmerville to spotlight this north Louisiana scenic river.

Corney Bayou is one of 47 streams or portions of streams officially designated as "natural and scenic rivers" of Louisiana as a result of Act 398 of the 1970 Louisiana Legislature.

The Natural and Scenic Rivers Act protects the rivers, streams and bayous in the system from channelization, clearing and snagging projects, channel realignment, reservoir construction and other activities detrimental to the natural environment of the streams and adjacent land areas. Four state agencies manage the scenic rivers program and review permits for activities along the scenic rivers, with the Department of Wildlife and Fisheries serving as administrator.

At the inception of the scenic rivers program, 31 Louisiana streams were included in the system. An additional 16 have been added since 1970 and today the system includes more than 1,250 miles of waterways.

"The Louisiana Natural and Scenic Rivers System is the most extensive preservation program of its kind in the nation," says Chuck Killebrew, biologist with the Department of Wildlife and Fisheries and coordinator of the scenic rivers program. "Twenty-seven other states have similar programs and Louisiana now ranks first in the number of water miles protected by a state law.

"The primary function of the scenic rivers program," explains Killebrew, "is to provide natural river areas for such uses as sport and commercial fishing, swimming, canoeing and tubing. Natural rivers also provide opportunities for scientific investigation and nature study, although recreational uses are by far the most popular.

"The inclusion of a stream in the scenic rivers system helps to insure that the stream's environment will be preserved for fish and other aquatic life," adds Killebrew, "and that its bordering habitat will be protected for other wildlife as well. So both man and wildlife benefit from the scenic rivers program."

The 47 streams protected by Louisiana's Natural and Scenic Rivers Act offer invaluable opportunities for outdoor recreation. Their natural character makes them aesthetically pleasing and they provide prime areas for fishing, canoeing, tubing, birding, swimming, picnicking, and camping.

"The Corney Creek Festival is a good example of how a local community uses and enjoys a scenic river," says Dr. Mike Caire, owner of Outdoor Adventures, a backpacking and canoe rental business in West Monroe.

Corney Bayou arises in the hill country of Arkansas, enters Louisiana in Claiborne Parish and runs southeasterly until it empties into D'Arbonne Reservoir in Union Parish.

"The portion of Corney Creek from the Arkansas line to Corney Lake is not navigable by canoe for the most part," says Caire. "The navigable portion begins at Corney Lake where there is a national forest campground. Many people like to canoe from this campground to highway 167. It's a nice trip through a semi-wilderness area.

"From Highway 167 to Highway 550 is the 12-mile course for the Governor's cup canoe race," explains Caire. "This segment offers canoeists an easy overnight trip or a fairly easy day trip."

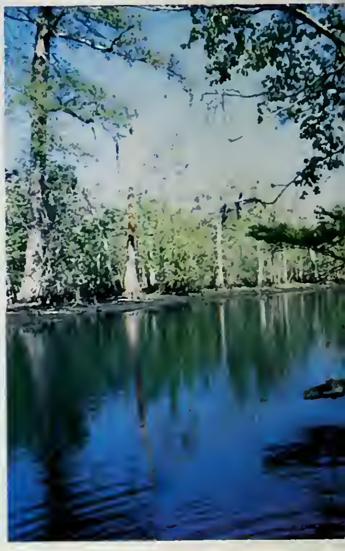
Canoeists on Corney Bayou have a wonderful opportunity to see wildlife...if they're quiet.

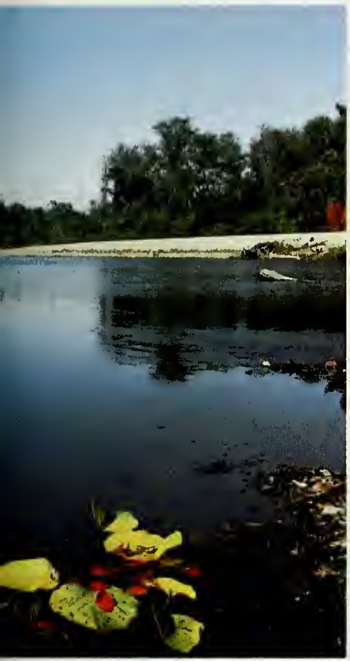
"When I go canoeing alone on Corney Creek," says Caire, "I can see a mink about every other time. I often see deer, snakes, turtles and many different birds."

During most of the year, except during the big Corney Creek festival, recreational use of the stream is not heavy, primarily because of the sparse population in this part of north Louisiana.

Surely the most heavily used scenic stream in the state is the delightful Tangipahoa. Flowing gracefully through Tangipahoa Parish from the Mississippi state line to Lake Pontchartrain, this scenic river is the state's most popular stream for "tubing"—floating the river on inner tubes. It's also a hot spot for canoeing, fishing and swimming.

Tubing has been popular on the Tangipahoa for some





Mark Saltz

Louisiana Office of Tourism

Mark Saltz

Mark Saltz

time, with the town of Tickfaw making its claim as the "tubing capital of the world." The canoeing rage has grown up in just the last decade.

René and Betty Ponsaa opened the Riverside Canoe Rental shop in Amite in 1975. They were one of the first in the state to establish a canoe rental business and offer shuttle services for canoeists.

"The first two years were discouraging," remembers René. "There was little interest in that time in recreation on the Tangipahoa."

Local residents were unaware of the potential of this river for outdoor recreation, claims René. But by the third year of his business, interest picked up, and in succeeding years a number of other canoe and inner tube rental businesses cropped up along the Tangipahoa. Nowadays the river swarms with fishing and watersport enthusiasts from spring to fall.

Recreation would not be what it is on the Tangipahoa today were it not for the scenic rivers program, say the Ponsaas. In the mid 1970s, practices of gravel industries along the river were degrading the stream's water quality. But, because of the scenic rivers act, the gravel industries must now adhere to strict guidelines to protect the river's integrity. Thus the river today provides great bass, catfish and bream fishing as well as the popular canoeing, tubing and swimming sports.

Southwest Louisiana harbors one of the state's other popular scenic streams—the Whiskey (Ouiska) Chitto. This sandy-bottomed creek arises in Kisatchie National Forest near Fort Polk and flows southeasterly through Beauregard Parish and into Allen Parish where it joins the Calcasieu River.

The Whiskey Chitto's water is swift and relatively clear. It's a prime stream for float-fishing for spotted bass.

The Whiskey Chitto is a fairly small stream in its upper reaches, where the roots of bordering trees hold the banks intact. Downstream, the portion designated by the scenic rivers act, the river grows wider and makes sweeping bends that cut into the bluff banks. This cutting action forms sand bars all along the creek, providing convenient camping and resting spots for canoeists and fishermen.

For canoeists, the section from Mittie to Carpenter's Bridge on Highway 1147 is narrow, winding, swift and plagued with many logs and snags—making it somewhat tricky to navigate. From Carpenter's Bridge to Indian Village on the Calcasieu River, a popular take out point, the stream becomes wider, slower, and the obstacles fewer.

There's a great deal of wildlife to be seen along the Whiskey Chitto. Birdlife abounds, with such species as woodducks, kingfishers, great egrets, little blue herons, spotted sandpipers, cliff swallows, Louisiana waterthrushes, and summer tanagers, to name a few. Deer are common along the creek and so are fox squirrels in the lower portions.

Whiskey Chitto, Corney Creek, Tangipahoa—these are just examples of the variety of scenic streams in the Louisiana Natural and Scenic Rivers System. The many others, from Kisatchie Bayou in Natchitoches Parish to Bayou Penchant in Terrebonne Parish, offer endless recreational opportunities for those who enjoy the beauty and wonder of Louisiana's out-of-doors.

Through the scenic rivers act, streams in the system are protected from manmade changes that alter their nature. The act is designed to protect the ecology of these streams, including their diverse habitats and wildlife, and also to preserve archaeological, geological and other natural and physical features of the streams.

Four major activities are banned by the scenic rivers act—channelization, channel realignment, clearing and snagging, and reservoir construction. Other projects or activities that may significantly affect a scenic stream require a permit issued by the Department of Wildlife and Fisheries. Each permit application is reviewed by four state agencies. Biologists and technical personnel study each proposed project, field evaluations are conducted, public notice is made and comments are received from the public before a decision is made to grant or deny a permit.

If a permit is granted for a project on a scenic stream, the activity is carefully monitored to assure the values and benefits of the stream are maintained.

With this system, the scenic rivers program is working. And, it's working well.

June is "National Rivers Month"—let's celebrate our Natural and Scenic Rivers System and be proud that Louisiana ranks first in the nation in stream preservation efforts.

Check our list of the state's 47 scenic streams and see which are nearest your home. Visit one and go swimming, fishing, canoeing, tubing or just "river watching." Enjoy it this June and all year-round. Celebrate our scenic streams!

Louisiana's Natural and Scenic Rivers

Pushepatapa Creek—Washington parish: From where East Fork and West Fork join near state line to where it breaks up prior to its entrance into the Pearl River.

Bogue Chitto River—Washington and St. Tammany parishes: From the Louisiana-Mississippi state line to its entrance into the Pearl River Navigation Canal.

Tchefuncte River & its tributaries—Washington, Tangipahoa, and St. Tammany parishes: from its origin in Tangipahoa Parish to its juncture with the Bogue Falaya River.

Tangipahoa—Tangipahoa parish: From the Louisiana-Mississippi state line to the I-12 crossing.

Chappepella Creek—Tangipahoa parish: From La. Hwy. 1062 to its entrance into Tangipahoa River.

Tickfaw River—St. Helena parish: From Louisiana-Mississippi state line to La. Hwy. 42

Amite River—East Feliciana parish: From the Louisiana-Mississippi state line to La. Hwy. 37.

Comite River—East Feliciana and East Baton Rouge parishes: From the Wilson-Clinton Hwy. in East Feliciana Parish to the entrance of White Bayou in East Baton Rouge parish.

Blind River—St. James, Ascension, Livingston, and St. John parishes: From its origin in St. James parish to its entrance into Lake Maurepas.

Bayou Des Allemands—Lafourche and St. Charles Parishes: From Lac Des Allemands to Lake Salvador.

Whiskey Chitto Creek—Allen parish: From the Beauregard Parish line to its entrance into the Calcasieu River.

Six Mile Creek—Allen parish: From the Allen Parish line to its entrance into Whiskey Chitto Creek, the origin of the East Fork and origin of West Fork of Six Mile Creek.

Ten Mile Creek—Rapides and Allen parishes: All of that portion of said creek lying within the boundaries of Rapides and Allen parishes.

Little River—Rapides, Grant, Catahoula, and LaSalle parishes: From the juncture of Dugdemona and Castor Creek to its entrance into Catahoula Lake.

Big Creek—Grant parish: From Hwy. 107 in Grant Parish to its entrance into Little River.

Fish Creek—Grant Parish: From its origin near Williana to its entrance into Little River.

Trout Creek—LaSalle Parish: From its origin near Hwy. 8 to its entrance into Little River.

Bayou Bartholemew—Morehouse parish: From the Louisiana-Arkansas state line to Dead Bayou.

Bayou L'Outre—Union and Ouachita parishes: From the Louisiana-Arkansas state line to its entrance into the Ouachita River.

Bayou D'Arbonne—Union and Ouachita parishes: From the Lake D'Arbonne Dam to its entrance into the Ouachita River.

Corney Bayou—Claiborne, Union and Lincoln parishes: From the Louisiana-Arkansas state line to Corney Lake and Corney Lake Dam to LakeD'Arbonne.

Middle Fork of Bayou D'Arbonne-Claiborne and Union parishes: From its origin near La. Hwy. 2 alternate to Lake D'Arbonne.

Saline Bayou—Bienville, Winn, and Natchitoches parishes: From its origin near Arcadia to La. Hwy. 156 in Winn parish.

Black Lake Bayou—Red River, Winn, Bienville, Webster, and Claiborne parishes: From the Webster-Bienville parish line to Black Lake in Natchitoches parish.

Bayou Kisatchie—Natchitoches parish: From its entrance into Kisatchie National Forest to its entrance into Old River.

Spring Creek—Rapides parish: From Otis to Cocodrie Lake in Rapides parish.

Saline Bayou—Catahoula and LaSalle parishes: From Saline Lake to Larto Lake.

Bayou Penchant—Terrebonne parish: From Bayou Chene to its entrance into Lake Penchant.

Bayou Cocodrie—Concordia parish: From Wild Cow Bayou to Little Cross Bayou.

Bayou Cocodrie—Rapides and Evangeline parishes: From U.S. Hwy. 167 to Bayou Boeuf-Cocodrie Diversion Canal.

West Pearl River—Washington and St. Tammany parishes: From the state line to its entrance into Lake Borgne.

Dorcheat Bayou (Dauchite)—Webster parish: From the Arkansas state line to its entrance into Lake Bistineau.

Bayou Trepagnier—St. Charles parish: From Norco to where it joins Bayou LaBranche.

Bayou LaBranche—St. Charles parish: From its source to where it drains into Lake Pontchartrain.

Calcasieu River—Rapides parish: All of that portion of said river lying within the boundaries of Rapides parish.

Bayou Dupre—St. Bernard parish: From the Lake Borgne Canal to Terre Beau Bayou.

Lake Borgne Canal—St. Bernard parish: From the Forty Arpent Canal to Bayou Dupre.

Bashman Bayou—St. Bernard parish: From its origin to Bayou Dupre.

Terre Beau Bayou—St. Bernard parish: From Bayou Dupre to the New Canal.

Pirogue Bayou—St. Bernard parish: From Bayou Dupre to New Canal.

Bayou Bienvenue—St. Bernard parish: From Bayou Villere to Lake Borgne.

Bayou Chaperon—St. Bernard parish: From its origin to its end, Sections 22, 23T, 13S, R13E.

Holmes Bayou—St. Tammany parish: All of that portion of the bayou lying within the boundaries of St. Tammany parish.

Bradley Slough (Bayou)—St. Tammany parish: All of that portion lying within the boundaries of St. Tammany parish.

Wilson Slough (Bayou)—St. Tammany parish: All of that portion lying within the boundaries of St. Tammany parish.

Morgan River—St. Tammany parish: From its juncture with the Porters River to its reentry into the West Pearl River.

Bayou St. John—(designated a "historic and scenic river")—Within the boundaries of Orleans Parish.

HERITAGE SWAMP

By Bob Sheldon
Photography by Guy LaBranche

Audubon Zoo's newest exhibit takes you through a living swamp and shows you how Louisiana's primal ecology helped mold its centuries-old culture.

A reclaimed swamp that was turned back into a swamp has in an instant become one of Louisiana's must-see attractions.

Just minutes from downtown New Orleans, it is a source of delight to foreign tourists and local residents, school children on field trips and serious students of biology.

As its name suggests, the Audubon Zoo's spanking-new Louisiana Swamp Exhibit is a living reproduction of the off-beat combination of flora and fauna found in Bayou State wetlands.

But it is much more than that. The most compelling feature of the 2½-acre display is the emphasis placed on the accommodation of human settlers to the swampland environment—the Indians of prehistory; the Acadian colonizers seeking freedom; the latter-day fishermen, moss pickers, beekeepers, oilmen and others who gained their livelihood from the lush terrain.

The $3 million outdoor exhibit is located on a site that once was drained and filled in and then left largely unused by the zoo, adjacent to Audubon park in highly urbanized uptown New Orleans. The realization of a seven-year dream, it is sustained by enthusiastic contributions from government, business and private sources.

The Louisiana Swamp, formally dedicated April 7, is open to all zoo visitors. Entering through an archway, they hear a recorded, Cajun-accented greeting and set forth on a winding boardwalk.

Over land and water the walkway leads into mammal, bird and reptile habitats, an arcaded aquarium with sunlit tanks, and frame structures like those erected for human occupancy in the early 20th century. At each station a carved wooden plaque describes the point of interest.

More than 50 species of swamp animals are on view, including alligators, opossums, armadillos and migratory fowl. Cougars, now officially regarded as extinct in Louisiana, are represented by a sleek-looking pair imported from Florida. Thanks to a plate-glass wall in the aquarium, you can watch otters disport themselves underwater as well as slosh around on a sluice outside their den.

Animals seem to like the exhibit as well as people. Migratory birds have already put the place on their map, and some uninvited snakes have established residence. A gorgeous female black bear, nabbed while raiding garbage cans (and donated to the Louisiana Swamp by the Department of Wildlife and Fisheries), is quite at home in her unbarred enclosure.

There are a Cypress Knee Cafe, a trapper's cabin on stilts, a store where fishermen could barter their catch and a Chitamacha palmetto-leaf hut. The cafe dispenses jambalaya, red beans and rice, and other refreshments. At the cabin you can buy books, scary rubber snakes and all sorts of keepsakes. The shops are operated by Friends of the Zoo, a philanthropic group.

At this writing, the exhibit was a step short of completion. Trees, grasses and wildflowers are in place, but a season or two of growth will enhance the scene considerably.

And the arrival of one resident was still awaited.

A swamp just isn't a swamp without its very own monster to inflame Cajun imaginations, bring out sheriff's posses and provide employment for magazine writers. There's a spot near the walkway for an agreeable monster to fill, and a suitably eerie script for him to follow.

The exhibit, under the egis of zoo director Ron Forman and grounds manager Anne Flower, is open the same hours as the Audubon Zoo: 9:30 a.m.-4:30 p.m. Monday through Friday and 9:30 a.m.-5:30 p.m. Saturday and Sunday.

Go see it.

A Cajun-accented recording greets visitors to Audubon Zoo's new Louisiana Swamp Exhibit as they enter the archway leading to its winding boardwalk.

Float Fishing Fever

By Wade Byrd
Photography by Mark Saltz

Float fishing is a refreshing change from the more conventional styles of angling. It's an ideal way to enjoy many of Louisiana's scenic streams while collecting a stringer of one of the state's most challenging yet often overlooked gamefish—the spotted bass.

The small, clear, sand and gravel bottom streams that snake their way through many areas of the state are a haven to one of Louisiana's most enjoyable yet often overlooked gamefish—spotted bass. Also known as Kentucky bass, red-eye and sometimes mistakenly called smallmouth, spotted bass do not obtain the size of their more famous largemouth cousins but are more than their match for pure angling pleasure.

Spotted bass have acquired the reputation of being scrappy fighters, and the person who coined the phrase "dynamite comes in small packages" could have well been a spotted bass fishermen because the phrase so aptly describes these fish.

A stringer of nice-sized spotted bass will consist of fish in the ¾-2 pound range. The official Louisiana record spotted bass stood at 4-lb., 14-oz. for almost a decade until a 5-lb., 4-oz. monster was reportedly landed earlier this year. Spotted bass in excess of ten pounds have been taken in other areas and the reasons why they don't grow to that size in their natural settings in Louisiana are not fully understood.

Although spotted bass inhabit most of the state's waterways, including a good population in the Atchafalaya Basin, the best fishing for them is associated with the small, swift-flowing sand and gravel bottom streams that are typical of central Louisiana and the Florida parishes.

The float trip, the most popular method of spotted bass fishing, is a refreshing change of pace from the more conventional styles of Louisiana angling. Those who fish this way find added enjoyment in the stillness and scenic solitude of a quiet morning or afternoon float along some small secluded creek.

Two of those fishermen are Robert Murry and Dudley Carver. Murry is a former Fort Polk naturalist, LSU wildlife instructor and long-time biologist for the Louisiana Department of Wildlife and Fisheries. He stalks the spotted bass with the same gifted perfection as the maestro whose mastery of the keyboard bespeaks years of determined practice. Weaving his custom-made float boat through the familiar maze of fallen trees that line Whiskey Chitto and Six Mile Creeks in Allen parish, he has the sport of float fishing for spotted bass down to an art form.

Carver, a Department of Wildlife and Fisheries biologist, is auhor of "Life History Study of the Spotted Bass in Six Mile Creek, Louisiana", the most comprehensive study to date on the habits and life history of Louisiana spotted bass. He has spent years getting to know spotted bass (all in the name of science) and his study provides much needed information not only for management of the species, but also for successful fishing of it.

As any avid angler knows, to be a successful fisherman requires both an understanding of the nuts and bolts operation involved and a thorough knowledge of the nature and habits of the sought-after fish. For spotted bass, both of these can be obtained by examining Murry's methods and Carver's conclusions.

According to Murry, there are basically two different ways to float fish. You can put in and fish upstream awhile, then float back to your original starting point or use the easier and more popular method of floating downstream from one bridge to the next. He prefers the latter method and cites evidence by Carver that shows that there isn't any measurable difference in the effectiveness of fishing upstream or down.

Canoes, he says, are the most popular type of float boat. He recommends models with flat bottoms because they slide over obstacles and shallow water spots better than round-bottomed ones. His custom-made boat, a cross between a canoe and a bateau, has the light weight and maneuverability of a canoe with the stability and shallow draft that comes with the flat bottom of a bateau.

Tackle is an area to which Murry pays particular attention. He uses a moderately stiff rod with 14-pound test line. Some super lightweight rod and reel combinations, he feels, allow larger fish too much play when fishing a tight spot. With the big ones, he recommends horsing them on in before they wrap the line around submerged obstacles. The 14-pound test line is light enough to effectively cast the lighter lures, but strong enough to not break easily when snagged.

Both Murry and Carver agree that the most productive stream conditions for spotted bass fishing are low and clear. Turbidity, they say, ruins spotted bass fishing faster than anything else. For this reason, float fishing in a small stream is very much at the mercy of the weather. A rain over very much of the stream's watershed can drastically effect water clarity and level.

The ideal time they recommend for a float fishing trip is four to five days after a rain when the stream is back to normal level and recently turned clear. Murry cautions that during a long dry spell the fish tend to be sluggish even though the water is crystal clear.

Some anglers prefer to fish one day earlier when there is still just a hint of murk to the water, thus making the boat a little harder for the fish to see. Murry agrees that the ability of the fish to see the boat can be a problem on small streams with very little boat traffic. When fishing such a stream he goes so far as to wear only drab clothing.

What the fish hear may be more critical than what they see, he says. Noise travels very well underwater and can spook fish over a wide area. Two actions he heavily discourages are bumping the paddle against the side of the boat (especially a metal boat) and walking around too much in a flat-bottomed boat. Sights and sounds, he believes, are not as critical on highly used streams where fish are more accustomed to boats and people. He claims to have caught fish near popular swimming holes even when people were splashing around in them.

It is not unusual for spotted bass not much larger than the bait to hit the big jointed vamp

Floating a small, swift stream with both parties in the boat fishing at the same time can be awkward and often unproductive. Time spent getting out of bushes is fishing time lost. Murry recommends alternating paddling and fishing for one hour at a time, with the paddler astern and the fisherman in the bow. The angler, he says, should try to fish at a 45 degree angle forward from the boat. This gives him time to work the lure before the boat overtakes its position.

The float trip is only the vehicle used to obtain the goal. Mastering it is only half the trick of catching spotted bass. The other half is fishing in an effective manner. To do this requires a knowledge of spotted bass and an understanding of proven techniques used to catch them.

Carver says his research on spotted bass feeding habits shows they are basically bottom feeders, with crawfish by far their single largest food choice. This finding supports an earlier study done by Patrick William Ryan in 1968 of spotted bass in the Tchefuncte River in St. Tammany Parish. But, while the earlier study found terrestrial insects to be a major contributor to the fish's diet, Carver found substantial insect feeding only in the fall. Since most terrestrial insect feeding is done at the water's surface, he concluded that the bass do feed at the surface, but much less frequently than on or near the bottom.

His conclusion leads to a difficult choice between fishing with topwater or underwater lures. Both types have their advantages. Topwater lures provide better action and are less likely to get hung, while underwater plugs more closely resemble the fish's natural feeding patterns. Carver fishes almost exclusively using underwater lures, recommending topwater baits only when the water is cloudy. His favorite lure is a double spinner brown skirted H&H that he modifies by replacing the first spinner with a #2 willow leaf. He uses a steady retrieve and says it is not uncommon for the bass to follow the bait almost to the boat before hitting it.

Murry on the other hand is a topwater enthusiast. The thrill of close-in topwater action to him overrides any advantage of the underwater baits. While not as restrictive in his choice of lures, he prefers the action of a large jointed Vamp. It is not unusual for fish not much larger than the bait to take it as soon as it hits the water. Unfortunately, the last time these baits were commercially available was somewhere around the time Lindbergh was piloting the Spirit of St. Louis across the Atlantic. There are a number of other topwater plugs he recommends, though, that are available, including the Tiny Torpedo, Lucky 13, Junior 13, Chugger Spook, Junior Chugger, jointed Rebel floater minnows and joined Rapalas. A topwater spinner bait, the Buzz King, is also reportedly very effective.

Murry's fishing technique closely resembles that of the fly fisherman—constantly casting. He fishes the nooks and crannies around and even on the opposite side of logs near the bank that persons of lesser casting skills avoid. As soon as the topwater plug hits the water, he works it a few inches then lets it rest a second. This procedure is continued for only a few feet, then if he hasn't had any action he reels it in as quickly as possible and sends it on its way again to another carefully chosen spot. Small pools between a log and the bank are fished on both sides by casting over the log and working the bait up to it and then, with a quick flick of the wrist, jumping the log and working another few feet before reeling it in.

A floating crank bait, Murry says, like the River Runt or Rebel can give an angler the best of both worlds. It can be fished up near the bank like a topwater plug, then retrieved for underwater action. Both men feel that some of the new naturalized baits, especially those that resemble a crawfish in nature and color should also be effective.

Cut banks, deep dark pockets and the fast water just below them, and ends of sand bars are all places they say offer good prospects for landing spotted bass. Cut banks are areas where the stream has made sheer cuts in the clay banks. These areas are usually much deeper than the stream average and are a favorite place for fish to hide, especially when full of logs and other obstructions. Small pockets cut on the downriver side of stumps close to the bank are other recommended spots to try. Shallow sand bars should be fished by casting across the sand bars and working the bait from deep to shallow water.

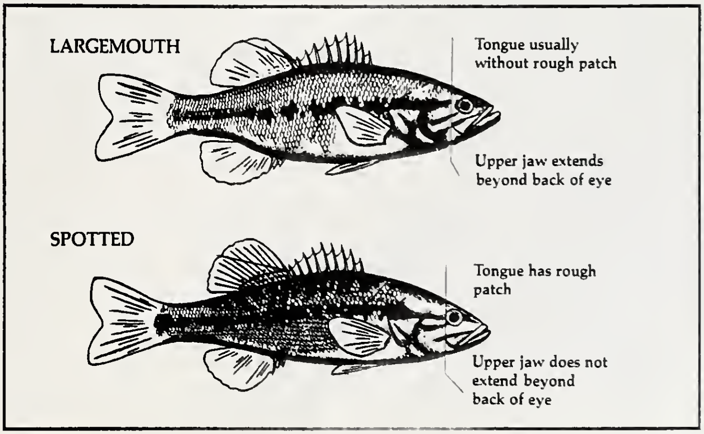
Except during August and September when the water temperatures are the warmest, spotted bass seldom venture far from the bank. Thus to be most effective, the plug should be placed as close to the bank as possible and worked back toward the middle.

Carver says he found no indication of periods of winter inactivity by spotted bass in Louisiana as had been reported in another state. He did, however, find a greater amount of food was eaten by them in late winter and early spring, which suggests these as the best fishing times. Unfortunately, what may be the best feeding periods are also the periods with the worst stream conditions. These factors balance out, he said, to make spotted bass fishing a year-round sport.

He was able to establish two major feeding periods during the day, he continued. These were 9-11 a.m. and 2-4:30 p.m., Central Standard Time, with the evening catches averaging somewhat less than the morning. Good catches all day long were recorded at times when stream conditions were ideal.

Streams that are too small for float fishing can often produce nice stringers of spotted bass by wade fishing. Generally the same techniques that apply to float fishing apply to wading. Always fish well in advance of your position and try to make as little noise as possible. Putting the fish on a long stringer that reaches the water and picking them up over sand bars will keep them alive and fresh for a longer period of time.

Spotted bass fishing is addictive. Like the popular TV commercial a few years back said, "Try it, you'll like it."


LARGEMOUTH
Tongue usually without rough patch
Upper jaw extends beyond back of eye
SPOTTED
Tongue has rough patch
Upper jaw does not extend beyond back of eye

A Woman's Touch

By Bob Sheldon
Photography by Guy LaBranche

Her "touch" has helped insure the preservation of Louisiana's bountiful freshwater fisheries resources. She is Janice Hughes, biologist with the Department of Wildlife and Fisheries.

A freshwater game species that grows steadily in popularity among Louisiana game fishermen is the hard-fighting striped bass, now found in abundance in lakes across the state.

A scant generation ago, however, the striper was unknown to most anglers. In the decade of the '50s it had virtually disappeared from its ancestral haunts along Louisiana's coastline.

Coincidentally, in the last decade, a development took place that was destined to help play a vital role in giving the stripers an inland home. A fresh-faced youngster just out of Northeast Louisiana University was added to the staff of the Department of Wildlife and Fisheries at Monroe.

A few people welcomed the talented newcomer into their midst, but outside of that, the hiring inevitably raised some eyebrows. The young biological aide was, after all, kicking over a precedent: Before long there would be a promotion, and the department for the first time in its history would entrust the role of biologist to a woman.

Today, the sprightly and energetic Janice Hughes is part of a restocking program that annually puts a million or more striped bass into Louisiana's freshwater lakes, and her name commands renown among the world's leading fisheries biologists.

Occasionally, she admits with a chuckle, heads still turn as she goes about her daily round of tasks clad in hip boots or trim brown uniform. "Or I'll answer the phone, and the caller will say, 'No, no, I want a *biologist!*'" But Janice says she enjoys the constant challenge to "prove" herself, and her warm personality and cool professionalism invariably erase any doubts.

That's among the home folks. On the international scene, it's a different story. There her reputation is more than secure.

These days Janice is making final preparations for a global journey in June that will take her to Finland, Russia and China in the company of 35 other scientists. They'll confer with fisheries experts on mutual problems, visit university campuses and inspect aquaculture stations. Characteristically, Janice looks forward to the trip as a "people-to-people" mission.

A bare six weeks after her return to Louisiana, she'll be off to Cornell University in Ithaca, N.Y., to preside at the annual meeting of the American Fisheries Society in August. The society is the world's oldest and largest scientific body dedicated to the advancement of fisheries science and the conservation of renewable aquatic resources.

Janice is president of the society for 1983-84. In the 114 years of its existence, the prestigious group has conferred its top honor on only one other woman, Dr. Emmeline Moore of New York. When Dr. Moore was elected in 1927, the society had around 200 members; it now numbers 8,500.

Affixed to Janice's office door is a sticker that reads: "I like fish." It typifies her attitude toward her work.

Bastrop-born Janice was still a student at NLU, studying biology with no particular speciality in mind when in 1958 she landed a job with the Department of Wildlife and Fisheries as a part-time laboratory assistant. Put to work conducting routine lab analyses, she learned where her interests lay, and she has spent her entire career at the District II installation at Monroe with its complete laboratory facilities, its man-made fish pools and its sylvan setting.

Receiving her bachelor's degree in 1959, she became a permanent member of the staff as a biological aide. In 1961 she was named a fisheries biologist I, the opening level for that position, meanwhile pursuing studies at the university until she obtained a master's in biology.

As her duties expanded to cover various aspects of fish population, water chemistry and aquatic vegetation, Janice collaborated on a series of scholarly technical papers with Dr. James T. Davis, now with Texas A&M University. She developed a special concern for the toxic effects on fish of the chemical plant killers then being used in Louisiana agriculture, and early on she published some important studies on the subject.

Janice has worked on such problems as farm pond management, fish parasites and diseases, and aquatic weed control. Some of her most notable contributions, however, have focused on that prized gamefish, the striped bass.

In its saltwater habitat ranging Louisiana's Gulf of Mexico coastline, the mighty striper can attain weights topping 70 pounds. But in the mid-1950s stripers began to decline and by the mid-'60s they had disappeared from the gulf waters. Biologists believe such manmade incursions as pollution and channelization contributed to the decline.

The striped bass can survive and grow to 50 pounds in Louisiana freshwater lakes, but can't or won't spawn there. Apparently the striper densities are too low and the water current in the lakes is insufficient for successful spawning.

Working with these striped bass is one of Janice's jobs. She has been at it every spring since 1965 when she was named project leader of Federal Aid Project F-15, charged with studying the effects of various chemicals on striped bass and determining feasible techniques of rearing the fish.

The work involves gathering mature fish to be used as brooders, stripping them of their eggs and hatching the fish into the tiny creatures known as fry. After they are nourished and develop into fingerlings—finger length, of course—they are then ready to be released into the state's lake system.

The task of producing the striped bass is a joint effort of all fisheries personnel and this year it was slated to get under way April 9 at the Toledo Bend Research Laboratory.

As a first step, the necessary broodfish, male as well as female, must be rounded up—generally by catching them on hook or line or with nets. The females then are injected with hormones to induce ovulation.

Samples of the eggs are taken, and when they're ready, the eggs are stripped from the female simply by grasping the fish in the hands and skillfully applying pressure. The timing of this procedure is critical—the eggs must be stripped within 30 minutes of ovulation—so for about a month, the staff maintains a 24-hour watch, seven days a week.

The eggs are placed in jars. It takes them approximately two days to hatch, and the tiny fry swim from the jars into an aquarium. Brine shrimp are utilized in their feeding. At six days of age the bass go into ponds, and after four to six weeks more, they are transplanted to freshwater lakes.

Fisheries personnel strip the eggs from about 100 females to produce the 20 million fry they need. The ultimate aim is to wind up with a million to 1½ million fingerlings. Actually, about half of these will be striped bass and the other half will be hybrid striped bass, a hardier breed resulting from a cross between the striped bass female and the white bass male.

Moved in tank trucks, the striped bass have been released in as many as eight public lakes and the hybrids in 27 lakes. Game fishermen need no further incentive than to know that the bass will be there waiting for them, but Janice points out that the bass also perform an indispensable task in keeping down shad populations in the lakes.

Janice's busy days confront her with an endless variety of tasks, from serving as an expert witness in the prosecution of poachers to sharing her knowledge with eager young students who come to learn at the District II laboratory as she once did.

The satisfaction she takes in her work is heightened by a growing optimism over the prospects of Louisiana's freshwater resources.

"We know a lot more today about maintaining water quality and managing healthy fish populations than we did when I first started with the Department of Wildlife and Fisheries," Janice says. "What's just as important, Louisiana farmers, fishermen and people in general are aware of the situation and are doing their part to preserve our bountiful resources for future generations."

And for that progress, fisheries biologist Janice Hughes can share in the credit.

Conservationotes

Governor's Conservation Awards

William A. "Willie" Fontenot of Baton Rouge was named Conservationist of the Year (1983) by the Louisiana Wildlife Federation during the Federation's 20th Conservation Achievement Recognition banquet held in conjunction with the organization's 45th annual convention in Monroe, March 9-11.

Fontenot, environmental specialist with the State Attorney General's Office, was presented with the Governor's Award, a handsome statuette of the American Bald Eagle. Eight other individuals and groups were also honored at the banquet for their outstanding conservation work in 1983.

The Governor's Conservation Achievement Program, sponsored by Sears, Roebuck & Co. and conducted annually by the Louisiana Wildlife Federation, seeks to recognize those individuals and organizations that have made significant contributions to conservation and wise use of Louisiana's natural resources during the preceding year. The Governor's Award recipient, the top honor, is chosen by a panel of expert judges from among the winners in seven categories.

Fontenot was chosen for the top award for his tremendous efforts in 1983 on projects and problems that are crucial to the future of our health and that of the fish and wildlife of Louisiana. He assisted in organizing the Louisiana Hazardous Waste/Toxics Workshop, which brought together for the first time individuals from throughout the state who live near or fought to clean up leaking hazardous waste sites.

Fontenot worked closely with ABC news in the production of the hour-long special "Water, A Clear and Present Danger" which aired in August of 1983. He also worked with CBS news, 60 Minutes, NBC news, CNN and numerous local television stations on environmental stories.

Throughout 1983 he worked with individuals, groups and agencies in evaluating and commenting on proposed programs and regulations dealing with pesticides, hazardous waste, oilfield waste, shell dredging, and drilling permits. Many people who live next to the many hazardous waste sites in Louisiana applaud Fontenot's untiring efforts to help clean up these sites.

Fontenot has been with the Attorney General's Office since 1978 where he works closely with the Attorney General and the attorneys in the Environmental Enforcement Section of the Louisiana Department of Justice on the many lawsuits and issues they handle.

According to Attorney General Guste, Fontenot has contributed greatly to the solution of the environmental problems of the state.

The recipients of the other conservation awards and a special recognition award were:

Allan B. Ensminger, chief, Fur and Refuge Division, Louisiana Department of Wildlife and Fisheries—Professional Conservationist of the Year.

Donald P. Landry—Non Professional Conservationist of the Year.

Raceland Junior High School Conservation Club—Youth Conservationists of the Year.

Leonard St. Pierre—Conservation Educator of the Year.

Tenneco LaTerre, Inc.—Conservation Communicator of the Year.

East Ascension Sportsman's League—Conservation Organization of the Year.

Rep. Edward C. Scogin—Special Conservation Award.

Wildlife Federation Award Winners: Top row, from left: Leonard St. Pierre; Todd Babin, Raceland Junior High School student; Allan B. Ensminger; Don T. Edwards; Henry Simoneaux of the East Ascension Sportsman's League; and John W. Woodard of Tenneco LaTerre. Bottom row: Jody Iver, student; Donald P. Landry; Willie Fontenot; Rep. Edward C. Scogin; and Corey Cartwright, student.

Aerial Photographs

There is a lot of interest in aerial photographs, both black and white and the newer color-infrared varieties. They can be quite valuable to outdoorsmen, and are also popular for decorative purposes. Few people, however, know how or where to order them.

Such maps (or photos, actually) are available from the U.S. Geological Survey (USGS) and ordering them is relatively simple. If at all possible, you should identify the exact area you want in your photo by the geographic coordinates (longitude and latitude) or by circling the area on a readily available USGS Topographic Map. Failing this, you can even mark the area you are interested in on a highway map. You should be as specific as possible when ordering and identify features such as particular lakes, crossroads, or buildings that you want to appear in your photo.

At this point, you must decide whether you want a low altitude view, which shows maximum detail but covers a fairly small area, or a high altitude view, which covers more territory at the expense of detail. You must also decide whether you want color infrared or black and white.

The USGS can supply aerial photos in sizes ranging from 9 x 9 inches to 36 x 36 inches. Prices range from $5.00 for a 9 x 9 black and white, up to $70.00 for a 36 x 36 infrared.

If, like most people, you are unsure of exactly what is available, send the details of your request to the U.S. Geological Survey, National Cartographic Information Center, Building 3101, National Space Technology Laboratories, NSTL Station, Mississippi 39529. A researcher will then inform you of what is available to match your request and the exact costs involved. Be sure to include both your return address and a telephone number where you can be reached during the day so that you can be contacted if necessary.

Veillon Recognized

Citizen conservationist Edgar F. Veillon of New Orleans has received the prestigious Gulf Oil Conservation Award for his efforts in behalf of Louisiana's threatened Atchafalaya Basin.

Veillon, an insurance salesman, was a leader in the successful campaign to provide the state with title to 10,000 acres of the Atchafalaya Basin to be preserved as wildlife habitat. A life member of the Louisiana Wildlife Federation, he has served that organization on 35 conservation issues, particularly the preservation of wetlands and hardwood bottomlands.

The awards are presented annually by Gulf Oil Corp. to 10 professional and 10 citizen conservationists. The 1984 honorees, representing 13 states, each received a bronze plaque, a citation and $500 at a May 10 ceremony in Washington, D.C.

Wills Receives LOWA Honor

Dewey Wills, retired assistant chief of the Game Division, Department of Wildlife and Fisheries, was named Conservationist of the Year for 1983 by the Louisiana Outdoor Writers Association. The award was presented March 10 in conjunction with the naming of the recipients of the Governor's Conservation Awards at the Louisiana Wildlife Federation banquet.

While the Governor's conservation awards are given for outstanding achievement in the preceding year, the LOWA award is given for an entire career of achievement and no one can receive it more than once.

A native of Pollack, Wills began his career with Wildlife and Fisheries in 1955 as a district game biologist at Ferriday. He became district supervisor in 1957 and in 1967 was promoted to Bureau of Outdoor Recreation Coordinator. In this capacity he was responsible for establishing projects for matching assistance under the Land and Water Conservation Fund Act. Some of the projects initiated, developed and/or acquired during his tenure include: the Spring Bayou, Red River and Loggy Bayou WMAs, 11 boat ramps throughout the state, and development of the Saline camping area.

It was when Wills was promoted to assistant chief of the Game Division in 1974 that he did the work for which he is best known—supervising land acquisition. Twelve wildlife management areas, totalling approximately 300,000 areas and representing an expenditure of some $29.7 million, were acquired during Wills' tenure.

Wills was not awarded the LOWA's highest honor for merely doing his duties with the Department of Wildlife and Fisheries well, but for going far beyond the call of duty at work and on his own in behalf of Louisiana's wildlife resources.

Writers Confer Honors: That huge striped bass, which set a state record at 37 pounds even, won the 1983 Fish of the Year award for John Dowden (right) of Leesville. He landed it at Toledo Bend in September. Holding Dowden's plaque is Kinny Haddox (center), president of the Louisiana Outdoor Writers Association. Dewey Wills (left) was named Conservationist of the Year by LOWA.

84

LOUISIANA
WORLD
EXPOSITION

The 1984 Louisiana World Exposition is here! It's happening in New Orleans May 12 through November 11.

MOVING?

If you are moving, be sure to send a change of address notice to *Louisiana Conservationist*. When you do, **be sure to include a mailing label with your old address** taken from the magazine. We must have this label to make an address change because it contains your computer account number. Compliance with this procedure will insure a prompt and accurate change of address. Mail the old label along with your new address to: Circulation Manager, Louisiana Conservationist, P.O. Box 15570, Baton Rouge, LA 70895.

"WE GET LETTERS..."

Great Purple Hairstreak

In the November/December 1983 *Louisiana Conservationist* article, "The Christmas Bough," I noted the following statement: "Mistletoe from host trees is spread by many birds, but according to ornithologists there is only one animal in the world that relies solely on the plant for food. That is the Australian mistletoe bird, a tiny flowerpecker...."

I would like to call your attention to the fact that here in Louisiana we have a butterfly which as a larva feeds exclusively on mistletoe. It is *Atlides halesus* Cramer—commonly called the "great purple hairstreak." Although the butterfly is small, wingspan 1½" to 1¾", it is brilliant blue and is one of the most beautiful species in Louisiana. I enclose a photo of the male and female....Most of my records are from the parishes east of the Mississippi River, but it can be expected wherever mistletoe occurs.

Vernon Brou
Southern Lepidopterists
Edgard, LA

Thank you for the interesting information about the "great purple hairstreak." Perhaps the Australian mistletoe bird is the only avian species that depends on mistletoe for food, but now we know there is a butterfly right here in Louisiana that depends on mistletoe too.

—*Editor*

More on Crabs and Shrimp

Just a few lines to let you know how much we enjoy the *Conservationist.* Keep up the good work. We would like to see more articles on crabs and shrimp. Also keep the recipes coming. I am sending you one that everybody loves....Once again, keep up the good work; we look forward to receiving our magazine.

Claire Loverde
New Orleans, LA

We featured crabs in last summer's Louisiana Conservationist *(July/August 1983) and, as you can see, we feature shrimp in this issue. We hope you enjoy the shrimping articles by Maurice Cockerham and the many shrimp recipes. We thank you for sending us your "marinated crab salad" recipe. Although we could not print it at this time, we are keeping it for possible future use.*

—*Editor*

Memories of North Louisiana Coon Hunts

Maurice Cockerham's article in the November/December issue "On the Hot Trail of a Coon" was most interesting to me, as it brought fond memories of my younger years when we lived on a farm on Red River near the town of Gilliam in northwestern Louisiana. My father would take me hunting on Phelps and Poston Lakes west of Plain Dealing, Louisiana. We would go in a wagon, crossing Red River on a cable ferry and camp out—hunt ducks in the daytime and coons at night.

Mr. Cockerham did not mention it, but being a coon hunter, I feel sure he has run into a problem that we did. And that was, if the dogs happened to tie in to a skunk, we might just as well head for the camp, as the coon hunt was over for that night!

Both Phelps and Poston Lakes have long since been drained, and are now farm land.

W. D. Mercer
Bossier City, LA

Enjoys Recipes

I can't begin to tell you how much I look forward to your wonderful *Conservationist* book.

My son Nerry L. Trahan gets it—he lives with me, as I lost my husband and he's not married.

I do use every one of your wonderful recipes. They are great!

Mrs. Nerry A. Trahan
Lafayette, LA

Jackals of South Africa are "There to Stay"

I found the article "The Coyote—Here to Stay" by Judy Marte in *Louisiana Conservationist* (November/December 1983) most interesting. We have a similar situation in South Africa where the black-backed jackal is here to stay. And, as in the case in Louisiana, the jackal is blamed for all small stock killings, whereas in actual fact, dogs are often responsible.

In the article Judy Marte states that your department is preparing a brochure on trapping coyotes. I would greatly appreciate a copy of it.

Dave Rowe
Natal Parks, Game and Fish
Preservation Board
Pietermaritzburg, South Africa

We have mailed you a copy of our coyote/wild canid trapping brochure and hope it provides your office with some tips on trapping nuisance predators in South Africa.

—*Editor*

More North Louisiana Stories

I have received the *Louisiana Conservationist* now for about a year and a half. I have read many interesting articles, but I enjoy the ones on fishing and hunting the best.

I would like to see more articles on fishing and hunting around northern Louisiana, because I do most of my hunting and fishing there. I just wanted to write and let you know I enjoy what you are doing.

Keith Acker
Shreveport, LA

Pie's Potpourri

By Marian "Pie" Pendley

1. Cocktail Shrimp
2. Shrimp Mould
3. Spinach Shrimp Strata
4. Egg Plant with Shrimp Casserole
5. Shrimp Salad
6. Shrimp Cocktail
7. Boiled Shrimp
8. Shrimp Remoulade
9. Shrimp Patties
10. Barbecued Shrimp
11. Shrimp Creole

Spinach Shrimp Strata

10 slices white bread, cut in one-inch cubes
1 10-oz. package frozen chopped spinach
1 cup cooked shrimp, finely chopped
2 cups Cheddar cheese, shredded
1 can condensed shrimp soup
1 cup milk
4 eggs, slightly beaten
1/8 teaspoon ground nutmeg
1/8 teaspoon black pepper

Cook spinach according to directions and drain well. In buttered, 2-quart shallow baking dish (12"x8"x2"), arrange half of bread cubes. Spread spinach on bread evenly. Sprinkle the chopped shrimp over the spinach and then add half of the chedder cheese. Add remainder of bread and cheese. Combine soup, water, eggs, nutmeg, and pepper. Pour over bread mixture. Cover; refrigerate 4 hours or more. Preheat oven to 350 degrees. Uncover; bake 45 minutes or until set. Serves 6.

Barbecued Shrimp

3-5 lbs. medium large or large shrimp
½ stick melted butter
½ bottle (small) Italian dressing
1 tablespoon lemon pepper
2 lemons, thinly sliced
½ teaspoon rosemary

In large baking pan, place washed, unpeeled shrimp (with heads). Pour melted butter and Italian dressing over shrimp. Add lemon pepper, lemons and rosemary. Cover with foil and bake at 350° for approximately 25 minutes. Uncover and continue baking until shrimp are tender. Serve in soup bowls with lots of French bread for dipping in the butter sauce. Serves 2-4.

Eggplant with Shrimp Casserole

2 eggplants *(peel, cut and soak in salt water 30 minutes, then cook until done*
2 medium onions, chopped
½ cup celery, chopped
1 medium bell pepper, chopped
¼ cup minced parsley
4 pods garlic, minced
1 cup bread, soaked in milk then squeezed
2 eggs
1 teaspoon lemon juice
salt and red pepper to taste
½ cup Romano cheese, grated
2 lbs. shrimp *(cleaned and deveined)*
2 strips bacon, fried and crumbled

Fry bacon. Remove and in the bacon drippings saute the onions, celery, bell pepper, garlic. Add shrimp and cook for a few minutes. Mix all the ingredients together, reserving half the cheese. Place the mixture in a buttered casserole and add remaining cheese on top. Bake in 350° oven for 45 minutes. Serves 6.

Shrimp Patties

1 lb. shrimp
1 bell pepper
1 large onion
1 large potato
2 pods garlic
1 egg
3 tablespoons cracker meal or bread crumbs
salt and pepper

Grind together the shrimp, bell pepper, potato, onion and garlic. Add salt and pepper. Mix all ingredients with the egg. Form into patties and roll in meal or bread crumbs. Fry in deep fat. Makes 6 to 8 patties.

Shrimp Salad

2 cups cooked shrimp
¼ cup bell pepper
¼ cup sweet pickle relish
¼ cup celery
¼ cup sliced olives
3 boiled eggs, quartered
3 medium tomatoes, quartered
crisp lettuce
2 tablespoons mayonnaise
2 tablespoons catsup
1 teaspoon olive oil
salt and pepper ,dash Tabasco

Leave the shrimp whole or break into large pieces. Mix with the next four ingredients. Combine the mayonnaise, catsup, olive oil, salt, pepper and Tabasco. Pour over the shrimp and mix well. Suggestion: place two crisp lettuce leaves on each salad plate. Arrange wedges of egg and tomato quarters and fill center with shrimp salad.

Shrimp Creole

2 lbs. shrimp *(cleaned and deveined)*
2 cups chopped onions
1 cup chopped celery
1 6 oz. can tomato paste
2 6 oz. cans tomato sauce
1 large bell pepper
4 pods garlic, minced
1½ teaspoons sugar
1 cup green onion tops, minced
1 cup parsley, minced

Season shrimp and set aside. Saute onions and celery in butter. Add tomato paste, tomato sauce and four cups of water. Cook one hour, stirring occasionally. (Add water if sauce becomes too thick.) Add the shrimp and the other ingredients. Cook over low heat for 30 minutes. Serve over steamed rice. Serves 8.

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